



SFDEM

**SAN FRANCISCO DEPARTMENT
OF EMERGENCY MANAGEMENT**

**Climate Action Plan FY10-11
March 30, 2011**

ANNE KRONENBERG, EXECUTIVE DIRECTOR

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1. INTRODUCTION

The Department of Emergency Management's (DEM) footprint includes the consumption of energy (electricity and natural gas) and liquid fuels from our fleet for the various facilities that DEM occupies: 1011 Turk Street, 30 Van Ness, 1 So. Van Ness and 5 units of siren warning systems located in 5 locations (Tompkins Street, Pacheco Street, Fulton Street and Fitch and Egbert Street).

DEM also occupies an office on Lombard Street (Urban Area Security Initiative or UASI) which is under the management of the Port of San Francisco (SF Port). The SF Port prefers to report the entire energy usage of the UASI office as part of their department. Therefore, no CO₂e was calculated for that location.

For Fiscal Year 2010-2011, 1011 Turk and the 5 siren warning systems locations' emissions' sources are: *212.90 metric tons (or Tonnes) of CO₂e emission are from natural gas, 27.91 metric tons are from electricity; and 15.33 metric tons for liquid fuels.*

The two offices occupied by DEM at Real Estate Division's (RED) buildings emissions are: *25.33 metric tons are from natural gas and 2.77 metric tons are from electricity.* No emissions on liquid fuels were reported in any RED's buildings.

Combining all the emissions produced for FY 2010-2011, ***84% is from natural gas, 11% is from electricity and 5% from liquid gas (unleaded gasoline).***

****See Appendix "A" FY2010-11 Carbon Footprint Summary provided by GoogleDocs.***

DEM's climate action goal is to reduce its natural gas use by 10%-15%; electricity use by 5%-10% and liquid gas use by 5%-10% by 2012 by continuing to perform the same energy saving practices in our facilities.

2. DEPARTMENTAL PROFILE

Departmental Mission:

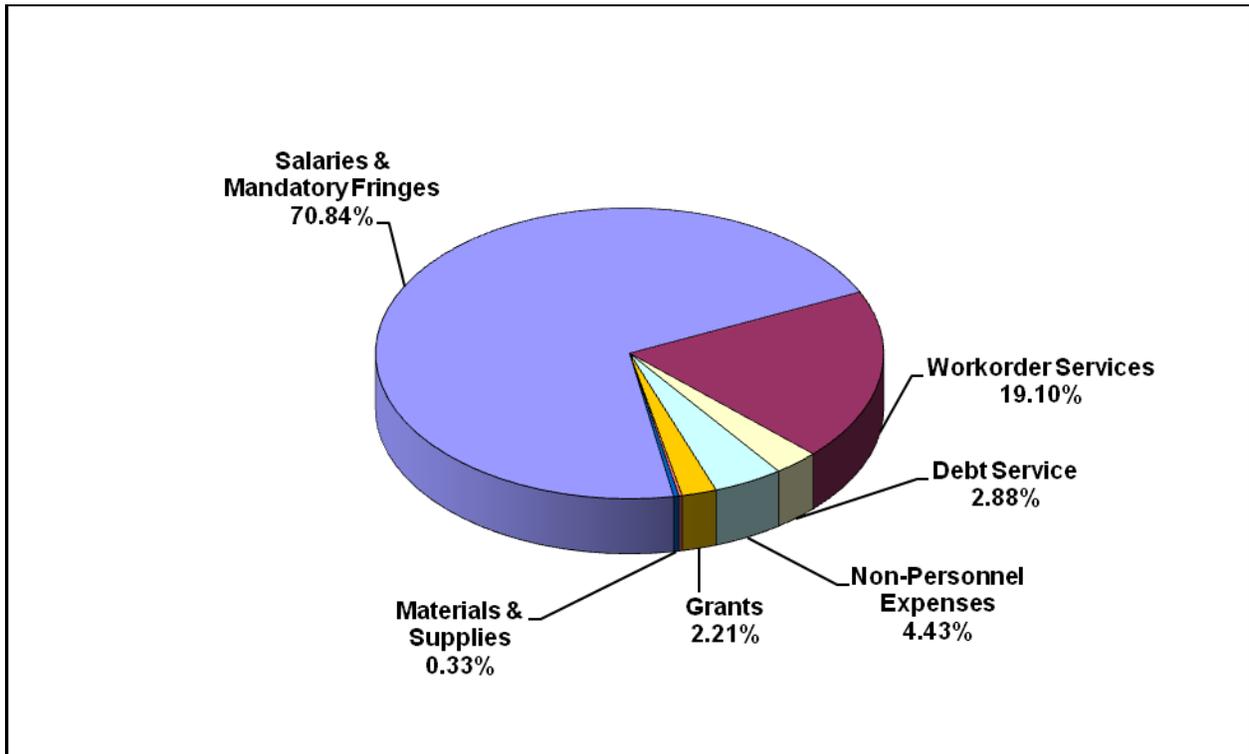
The Department of Emergency Management (DEM) provides vital, professional, emergency communication between the public and emergency responders and provides for the overall preparation for disasters through coordination between the Division of Emergency Communications and the Division of Emergency Services.

The staff at DEM serves as an immediate vital link between the public and its emergency services and plays an integral role in ensuring command and control during daily emergencies, through large scale citywide events, and when the emergency involves natural and manmade disasters.

To that end, the Department provides key coordination and leadership to City and County departments and all stakeholders in the areas of emergency planning, mitigation, communication, response, and recovery.

Departmental Budget:

DEM's annual budget request of approximately \$43M is consistent with the primary goals of the department. A high-level view (refer to the allocation chart below) of the budget categories shows that total personnel costs represent roughly 71% of the total operating budget, which accounts primarily for the day-to-day staffing of the department. Whereas, the remaining 29% accounts for daily activities associated with work order services, debt service payments, technology maintenance, and materials and supplies.



Number of Employees:

DEM is comprised of **264 full-time employees (as of 2/28/12)**

- Division of Emergency Communications (DEC): **191 employees**
- Administration and Support: **36 employees**
- Division of Emergency Services (DES): **25 employees**
- Urban Area Security Initiative (UASI): **12 employees**

Facilities

The Department's facilities are comprised of the following business locations:

1. Combined Emergency Communications Center (CECC)
1011 Turk Street, San Francisco, CA
34,000 sq. ft. over a partially submerged 20,000 sq. ft. basement-parking garage
2. Division of Emergency Services (DES)
30 Van Ness Ave, Suite 3300, San Francisco, CA
11,555 sq. ft. – Leasing an office through the SF Real Estate Division (RED)
3. DEM Equipment Room
1 So. Van Ness Avenue, San Francisco, CA

658.4396 ft. (Leasing a room through RED)

4. Urban Area Security Initiative (UASI) Management Team
10 Lombard Street, Roundhouse Two, San Francisco, CA
4,600 sq. ft. (Leasing an office through the Port of San Francisco. This program is fully funded through grant dollars.)
5. DEM owns five (5) units that make up the Outdoor Public Warning System (OPWS). These are located in five different locations and DEM is responsible for the electricity expenses. The Department of Technology (DT) maintains the systems. These units are located at:
 - (1) 610 Tompkins Street also listed as 3990 Folsom – 60 Amps/3 Wire/effective 7/01/05/ SO #2262-E
 - (2) Fitch and Egbert Street – 60 Amps/3Wire/effective 7/01/05/ SO #2263-E
 - (3) 4308 Pacheco Street – 60 Amps/3 Wire/effective 7/01/05/ SO #2264-E
 - (4) 3501 Fulton Street – 100 Amps/3 Wire/ effective 9/26/08/ SO #2468-E
 - (5) 6323 Fulton Street – 100 Amps/3 Wire/effective 9/26/08/ SO #2469-E

*** See Appendix “B” – Copy of five (5) Service Orders.**

Vehicles

DEM owns and operates a fleet of eight (8) vehicles in support of its core missions of providing 911 emergency communications, maintaining the citywide public safety radio system, disaster response and recovery planning, and managing the Emergency Operations Center (EOC). Due to the nature of these functions, vehicles are fueled and available for deployment 24/7/365.

Many of these vehicles are used to transport staff, materials and equipment to meetings within the footprint of the City. Occasionally, vehicles are needed for extended locations, i.e. Sacramento, for executive level meetings concerning local or regional initiatives. One vehicle is set aside for the use of IT technicians who maintain the various radios, computer, microwave, and other technologies vital to operations. Staff may also be deployed in the field during emergency activations either to incident command posts, or other operation centers.

*** See Appendix “C” – DEM Fleet Inventory FY2010-11**

DEM’s Contact Information for DepCap:

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3. DEPARTMENTAL CARBON FOOTPRINT & HISTORICAL ANALYSIS

3a. FACILITIES & REDUCTION MEASURES

FACILITIES VERIFICATION

The list of facilities that is being used by SF Environment to calculate the FY1011 departmental carbon footprint has been verified by DEM's Climate Liaison. Out of the fourteen (14) facilities listed in GoogleDocs, six (6) facilities are in question due to lack of documents or SO (Service Order) number to support that DEM owns the six facilities. Research is in progress.

3a.1 ENERGY

FISCAL YEAR 2010-2011 CARBON FOOTPRINT FROM CONSUMPTION OF ELECTRICITY, NATURAL GAS AND STEAM

Annual Departmental CO2e Emissions (owned and as tenant)
 (Reference: *GoogleDocs_FY1011_Emissions Energy Source_line 28-36_col. D & I*)

Source	Consumed	CO2e
Electricity (kWh)	2,077,575.70 kWh	30.58
Natural Gas (Therms)	44,782.53 therms	212.90
Total CO2e from facility energy		268.90
Gasoline/Fuel C02	1,740.35 gal	15.33
Total CO2e		284.23

- a. Combined Emergency Communications Center (CECC) & 5 OPWS units – 1011 Turk Street, 3990 Folsom, Fitch & Egbert Street, 4308 Pacheco Street, 3501 Fulton Street & 6323 Fulton Street (Reference: *GoogleDocs_FY1011_Energy_line 45-50_col. D*)

Source	Consumed	CO2e
Electricity (kWh)	1,889,958.00 kWh	27.91
Natural Gas (Therms)	40,021.00 Therms	212.90
Total CO2e from facility energy		240.80

- b. Real Estate Division (RED) Buildings occupied by DEM (30 Van Ness (DES) & 1 So. Van Ness (Closet) (Reference: [GoogleDocs_FY1011_Energy_line 38-43_col.D](#))

Source	Consumed	CO2e
Electricity	187,617.27 kWh	2.77
Natural Gas	4,761.53 Therms	25.33
Total CO2e from facility energy		28.10

- c. Urban Area Security Initiative (UASI) Management Team – 10 Lombard, Roundhouse Two (leasing through the SF Port)

***See Appendix “D” - Email to Richard Berman of US Port dated 3/13/12 – inquiry, if SF Port will account the energy information for UASI location for FY10-11**

SF Port preferred to claim the entire energy usage of the UASI office for the last two years. No CO2e was calculated for the UASI office for FY0809 and FY0919.

ENERGY EFFICIENCY AND CONSERVATION:

Energy Efficiency Retrofit Projects

- a. Facility Name: DEM – Combined Emergency Communication Center, 1011 Turk Street
- b. Project Description:
 - **HVAC (Heating, Ventilating and Air Conditioning)**
 - DEM is using economizer operations of the Air Handling Unit (AHU). There are three AHUs in the facility. The AHUs work under principle of conditioning air supply air by either heating or cooling it and then distributing it to the various zones, where if needed, it is reheated again.
 - Heating or cooling supply air is done in two ways: either mechanically or through economizer control. Mechanical cooling is done though a chiller plant.
 - Another energy saving method is the use of economizer dampers. This method modulates the amount of outside air and returning air from the building to meet the set point temperature. The economizer is highly efficient in eliminating or greatly reducing the need for mechanical air conditioning.
 - DEM, through facility assigned *Real Estate Division Stationary Engineers*, performs regular maintenance and inspection on HVAC units, changing

filters every three months, cleaning burners and conditioner coils and checking ducts and piping for damage.

- DEM procured a software upgrade of the existing Building Automation System (BAS) to attain a higher degree of efficiency in maintaining its HVAC system and capturing data to establish temperature trending from which logical changes to settings can be made.

- **Building Automation System (BAS)**

- An updated version was installed in 2009, with the renovation of the 911 Operations Dispatch Call Center. New controllers were installed on the floor utilizing the Local Operating Network (LON) format.
- A new user interface was created for both the Stationary Engineers and Supervisors to use on the front end of the BAS. The sequence of operations for the various building system was reviewed and changes implemented by the Stationary Engineers.
- These changes allowed for better operation of the boiler plant and chiller plant that resulted in energy savings and less wear and tear on the equipment.

- **Lighting**

- DEM uses motion sensors to control lighting in occupied zones of the building. Motion sensors mounted on the ceiling detect occupancy of rooms and keep lights on. However, if no motion is noticed after a set time, the lights automatically shut off.
- The basement parking garage has been separated into multiple zones providing light only where needed, via sensor detection. This lowers the amount of energy the lighting fixtures use on a daily basis.
- DEM's exterior lights are controlled via photocells located on the roof. When ambient light levels fall below a certain level, the photocells send a signal turning on the lights.
- DEM has 99% fluorescent lamps and 01% incandescent lamps for the interior of the building.
- Custodians and Security staff are given verbal reminders to turn off lights when not in use.
- Light switches that can be turned off when not needed are marked by labeling them as "Turn off lights when not in use"
- Lights in unoccupied rooms are turned off after workday and when otherwise not in use, and where windows provide sufficient day lighting.
- As per recommendation of EMCOR Energy Services (through PUC), DEM delamped light fixtures on the second floor from 3 lamps to 2 lamps.

c. Highlights/Status for FY2010-2011 in Energy Efficiency:

The Stationary Engineers reviewed the building sequence of operations for the various building equipment and have made changes to set points to the system to allow for proper operation and improved energy efficiency. Some system changes made include:

- **Air Handling Unit (AHU):** Checks and repairs made to economizer damper actuators. AHU 2 had two actuators replaced. The supply air set point for the AHUs was lowered from 62° to 60°F. This increased the cooling capacity of the AHUs and had beneficial results to the chiller plant.

- **Improved Indoor Air Quality:** On November 08 through November 18, 2010, two of the three AHU units at DEM underwent duct cleaning and filter bank re-configurations. The heating/cooling coils were cleaned and pressure washed to remove existing oxidation dust and coated with oxidation inhibitor. New sets of high efficiency filters were installed in all the AHUs. These filters provide more surface area with the “mini pleat” design and last much longer than traditional paper air filters. In addition, the final HEPA filter bank was installed after the heating/cooling coils so any future particulates generated from the coils will be trapped in the filters and not be carried into the duct system. Upgrades include: *improved indoor air quality, longer run times on new filters, less labor hours spent on filter changes and extended lifespan of AHU due to corrosion mitigation.*
- **Building Automation System Upgrade:** The original BAS system is currently being phased out. The system is no longer supported and parts unavailable. DEM is currently looking to upgrade the system with some of the different manufacturers. Some energy saving functions that are available includes real time power monitoring, occupancy scheduling, enhanced alarming to include remote notification and response.
- **Air Conditioning Coil Unit (ACCU):** It was determined earlier this year that CAC 2 & 2 shared the same controller, which was powered via CAC1. If CAC1 failed on a power failure, CAC 2 would be deactivated as well. We had a foreign source of electricity installed to make the system more robust to power failures and keep both units functional.
- **Boiler Plant:** There are two (2) boilers at DEM. One boiler is placed in Lead or Primary and the other will come on Lag or Secondary if needed. The old sequence of operation had the Lag boiler coming on when the outside temperature is below 60°F. Stationary Engineers lowered the Lag set point to 56°F preventing the second boiler from coming on when not needed. This has lead to a reduction in the consumption of natural gas and lowers emissions coming from the building.
- **Smart Water Meters Installed:** New domestic water meters were installed. The smart meter send real time data back to the utility department via a wireless signal. This lowers the CO2 spent from having a technician drive out to record the meter.
- **Regular Maintenance and Monitoring:** Overall, the Stationary Engineers monitor, maintain and repair the HVAC system for DEM. Through daily rounds and maintenance work, the HVAC system is continually fined tuned to operate more efficiently. These changes have made a significant reduction in energy use and improved the indoor environment for DEM occupants.

d. Audit:

- On 12/09/2009, an initial energy audit was conducted by PUC through EMCOR Energy Services at DEM-1011 Turk Street.
- On 10/06/10, Mark Theobald from EMCOR Energy Services presented the draft on the audit report which was prepared on 03/04/2010. Also presented were the recommended energy efficiency measures for DEM as follows:

- Optimize scheduling of air AHUs(Air Handling Units) – **waiting for final report and funds**
- Install VFDs (variable frequency drives) on chilled water pumps (3 pumps) – **waiting for final report and funds**
- Delamping the 3-lamp fixtures to 2-lamp fixtures on the 2nd floor – **completed in December 2010**
- Server utilization project in the server room (data center) – **DEM has converted 15 physical servers to virtual. Over the next year, DEM anticipates purchasing two more VMware. This project is funded by DEM.**

***See Appendix “E” - Summary of the Audit Report and Recommended measures from EMCOR**

- DEM is waiting for the final report from Mr. Gary Oto of PUC regarding EMCOR’s final audit and changes to the recommended measures. Follow-up e-mails were sent to EMCOR and PUC.
- Funding has not been secured

e. Estimated Savings:

With the on-going energy conservation actions that DEM is practicing and if EMCOR’S recommendations will be implemented, DEM will realize the following savings for the next fiscal year:

- **Electricity:** DEM is expected to save about 76,813 kWh which is approximately 4% of total electricity usage.
- **Natural Gas:** DEM is expected to save about 11,748 therms, which is approximately 27% of current natural gas usage.

f. Plans:

- DEM, through work ordered RED Stationary Engineers will continue its practices in monitoring and regularly maintaining the HVAC system.
- DEM plans to replace 26 T to new energy saving light fixtures to Lithonia 2AVG-232T8-SBL-277 non-dimmable ballast in the administration, north wing
- DEM will be requesting for another audit from PUC considering that the initial audit is almost out-dated because of several changes and renovation at DEM.

g. Compliance with the Existing Commercial Building Energy Ordinance

- In December 2011, DEM completed and submitted the “Energy Performance Benchmarking” form to SFPUC.
- As of 3/19/12, a report has not yet been issued according to Jonathan Cherry, of PUC.

***See Appendix “F” – Copy of the “Energy Performance Benchmarking” completed and submitted to PUC in December 2011.**

h. Compliance with the Lighting Efficiency Ordinance

- DEM is compliant with the requirements outlined in the Commercial Lighting Efficiency Ordinance (SF Building Inspection Commission Code Chapter 13D). A temporary waiver is not necessary.

****See Appendix "G" – e-mail from Sachiko Tanikawa regarding DEM, being compliant with the lighting efficiency ordinance***

GREEN BUILDING

A renovation project for the 911 emergency communications operations area was initiated in December 2006. The size of the project is 8,790 sq. ft, comprising 26% of the DEM facility. The project is under the management of the San Francisco Bureau of Architecture (SF-BOA). The project involves three phases of renovation which was originally expected to be completed by December 2009. However, in September 2009, the original Contractor suspended work on this project and had opted to not fulfill their contractual obligation for the completion of this project. Phase 1 and Phase 2 were completed in September 2009. Phase 3 resumed in April 2010 under new a Contractor and was completed in December 2010.

Regarding LEED requirements, the SF Bureau of Architecture (BOA) consulted with Mark Palmer, Green Building Coordinator for the City and County of San Francisco. Mr. Palmer indicated that due to the size of the project and type of work, it is not required to be LEED certified. However, Mr. Palmer recommended adherence to the green building compliance guide, such as NO VOC paint, no PVC materials, and, a Greenscreen Eco shading system. The new carpet and adhesive have earned the Carpet and Rug Institute's Green Label Plus.

****See Appendix "H" - E-mail from the Bureau of Architecture dated 2/02/2010.***

RENEWABLE GENERATION

Photovoltaic (PV) Project

As part of DEM's FY 2011-2012 budget submission, the department has submitted a capital request of \$1.81M for the installation of solar panels on the Combined Emergency Communications Center. The department has submitted this project request over multiple fiscal years, but has yet to receive funding approval. DEM will wait for SFPUC notice as soon as funding becomes available.

****See Appendix "I" – Project Request Form for Photovoltaic System FY2011-12***

3a2. WATER

FISCAL YEAR 2010-2011 WATER CONSUMPTION

- a. Combined Emergency Communications Center (CECC) 1011 Turk Street and Western Addition Technology Center (WATC) 1003 Turk Street

	Consumption	CO2
Water	676,192.00 gal	0.0000
Sewage	508,939.20	0.0000

Reference: GoogleDocs_FY10-11Water_line 50-51_col. 1

- b. Real Estate Division (RED) Buildings occupied by DEM (30 Van Ness (DES) & 1 So. Van Ness (Closet)

	Consumption	CO2
Water	180,186.14	0.0000
Sewage	131,556.23	0.0000

Reference: GoogleDocs_FY10-11 Water_line 43-44_col. 1

- c. Urban Area Security Initiative (UASI) Management Team – 10 Lombard, Roundhouse Two (leasing through the SF Port)

****See Appendix “D” - Email to Richard Berman of US Port dated 3/13/12 – inquiry, if SF Port will account the energy information for UASI location for FY10-11***

SF Port preferred to claim the entire energy usage of the UASI office for the last two years. No CO2e was calculated for the UASI office for FY0809 and FY0919.

WATER EFFICIENCY & CONSERVATION

- Audit: In October 2008, through the Public Utilities Commission (PUC), a water audit and assessment was conducted by Intergy Corporation at 1011 Turk Street. However, we did not receive a written report from Intergy and PUC. Request for the water audit report has been sent to Intergy.

****See Appendix “J” – E-mail from Richard Fox of Intergy Corporation’s response to DEM’s request for the water audit report.***

- DEM promotes water conservation by posting stickers which were obtained from PUC. DEM posted stickers in all rest-rooms, break-rooms and kitchens. Other information or promotional materials were posted to bulletin boards at 1011 Turk Street facility.

****See Appendix “K” - Copy of information/promotion materials for water conservation***

- DEM uses aerators on rest-room and kitchen sinks that help reduce indoor water use.
- DEM, through the Real Estate Building Engineers, regularly monitor and detect leaks, and repairs take place immediately. Employees help by reporting any leaks they see in the facility.
- DEM and DES phased out the bottled water and replaced them into filtered dispensers. Five water dispensers were purchased for 1011 Turk and one at DES-30 Van Ness in 2009. One (1) additional water dispenser was purchased in June 2011. DEM has now a total of six (6) water dispensers. It saves the department around \$6,000 a year from buying bottled water.
- Due to the important function of the DEM for emergency preparedness, the Office of the Mayor has approved our bottled water waiver request for the 1011 Turk Street facility. The bottled water will be used when initiating the activation process for the EOC (Emergency Operations Center) and mobilization of personnel to respond to natural or man-made disasters.

See Appendix “L” - Copy of the Waiver Request for bottled water

See Appendix “M” – Copy of the approved bottled water Waiver Request from the Office of the Mayor dated 4/10/10.

- DEM has not been successful in separating the water account between 1011 Turk and 1003 Turk ,The Western Addition Community Technology Center (WACTC) due to the absence of an updated MOU between WACTC and the SF Recreation and Parks. Follow up efforts continue.

See Appendix “N” – Copy of latest e-mail response from SF Recreation and Parks regarding DEM follow-up on MOU.

3b. FLEET – FUEL USE & REDUCTION MEASURES

FLEET VERIFICATION

The list of vehicles and liquid fuel consumption values that are being used by SF Environment to calculate the FY1011 department carbon footprint has been verified by DEM Climate Liaison and Fleet Manager to be accurate and complete.

DEM is operating 8 vehicles. The liquid fuel consumption has been verified to be accurate and correct.

****See Appendix “C” – DEM Fleet Inventory***

FISCAL YEAR 2010-11 CARBON FOOTPRINT FROM MOBILE COMBUSTION OF FUEL

TOTAL GALLONS OF LIQUID FUEL CONSUMED FOR FY09-10: 1,740.35 gallons

TOTAL CO2 LIQUID: 15.33 (DEM gets all its fuel from Central Shops)

Reference: GoogleDocs_FY1011 Liquid Fuels_line 12, col. D & I

SUCCESS: DEM's fuel consumption and CO2 for FY09-10 was reduced by **2.13%** compared to FY0910

HEALTHY AIR AND CLEAN TRANSPORTATION (HACTO) PLAN FOR FISCAL YEAR 2011-2012

DEM submitted a plan to SF Environment in order to comply with the requirements set forth by the Healthy Air and Clean Transportation Ordinance (Chapter 4 of the City's Environment Code). This plan is attached as **Appendix "O"**.

The HACTO Plan for Fiscal Year 2012-2013 outlines DEM'S plans:

- DEM plans to purchase one (1) vehicle for the Fiscal Year 2012-2013 (Ford Escape hybrid)
- DEM plans to purchase two (2) alternative fuel vehicles for Fiscal Year 2012-2013
- DEM plans to remove two (2) vehicles (over 10 years old) for Fiscal Year 2012-2013.
- DEM will turn in Ford Contour before the end of FY2011-12
- DEM is successful in utilizing carpool to extend trips with other trips to avoid duplication, or linking staff with other staff going in the same direction.
- DEM will continue promoting the City's Transit, walking, biking, Muni, Bart, car share
- Other DEM methods and practices to respond to Green Vehicle Guide:
 - Exercise intelligent route planning:
Smart trip planning through monitored vehicle sign-out and carpooling remains in place to contribute to fuel savings;
 - Schedule and implement regular maintenance to optimize fuel efficiency and vehicle performance:
DEM follows GSA Central Shops Preventative Maintenance Schedule without fail. Note that in the last three (3) years, with the exception of two flat tire incidents, no DEM vehicle has broken down in the field, indicating the preventative maintenance (PM) program is effective.
 - Demonstrate education of employees: to drive reasonably, driving the speed limit reduces fuel consumption, accelerate gradually and avoid sudden start/stop:
For the proceeding four "tips": there is no current plan to develop a driver's training program that could encompass these ideas. With the exception of vehicles assigned to two (2) senior management staff, the number of employees that operate Department vehicles is minimal. Any direction usually comes in the form of email reminders to staff.
 - Verify use of right-size vehicles for intended application and ensure that vehicles are being used for their intended purpose (to avoid overly large and heavy

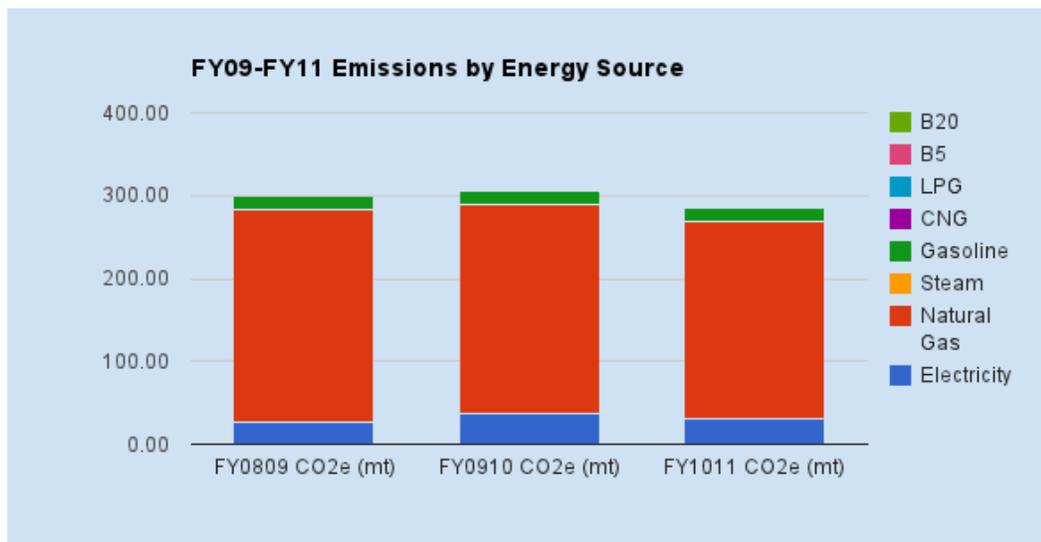
vehicles conducting operations that can be conducted by a smaller and lighter vehicle)

The Fleet Manager continues to pursue alternative fuel vehicles that fit the mission of DEM. He recently attended a product display of the Piaggio MP3-400 which has an average 55 miles per gallon (MPG) range. Unfortunately, this vehicle is more suited for parking enforcement, and would not fit within our mission. DEM Fleet Manager will be working closely with the Fleet Manager Tom Fung in looking for a replacement for the Chrysler “Gem” electric cart which is no longer sold.

BIO DIESEL

The bio-diesel requirement does not apply to DEM, as none of its existing fleet are using diesel. DEM does, however purchase diesel fuel to run our emergency generators. The Senior Building Engineer advises bio-diesel is not feasible for this application due to long-term stability of bio-diesel.

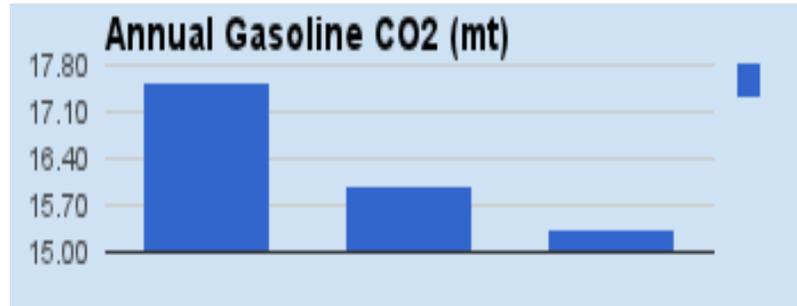
c. HISTORICAL ANALYSIS



ANNUAL DEPARTMENTAL CO2e EMISSIONS (mt)			
Emission Source Detail:	FY0809 CO2e (mt)	FY0910 CO2e (mt)	FY1011 CO2e (mt)
Electricity	25.67	37.16	30.68
Natural Gas	256.99	253.06	238.23
Steam	0.00	0.00	0.00
Total CO2e from facility energy (mt)*	282.65	290.22	268.90
Gasoline	17.54	16.00	15.33
CNG	0.00	0.00	0.00
LPG	0.00	0.00	0.00
B5	0.00	0.00	0.00
B20	0.00	0.00	0.00
Total Mobile Fuel CO2 (mt)**	17.54	16.00	15.33
Total CO2e (mt)***	300.19	306.22	284.23

Figure 3c.1: Comparative Analysis (3 years CO2e)

- Between FY0809 and FY0910, total CO2e increased by a small margin of 1.04% due to renovation project of the 911 Call center, where additional number of people occupy the building such as construction workers and contractors. More machines and equipment were used during construction.
- With the EOC (Emergency Operations Center) fully operational, several trainings, exercises and activation were conducted in the facility adding more people to use water and HVAC.
- Energy saving measures were implemented and intensified in FY0910. Several adjustments and close monitoring in building management took place. Staff members are becoming more aware and pro-active in energy conservation and zero waste management
- Between FY0910 and FY1011, total CO2e went down significantly by 4.07%. Natural gas is the biggest contributor to the the total CO2e.



Annual Gasoline (gal)			Annual Gasoline CO2 (mt)		
FY0809 Gasoline (gal)	FY0910 Gasoline (gal)	FY1011 Gasoline (gal)	FY0809 Gasoline CO2 (mt)	FY0910 Gasoline CO2 (mt)	FY1011 Gasoline CO2 (mt)
1,991.30	1,816.20	1,740.35	17.54	16.00	15.33
1,991.30	1,816.20	1,740.35	17.54	16.00	15.33

Figure 3C.2: Annual Gas Consumption

- For the last three fiscal years, CO2e from gasoline went down due to the following reasons: (1) replaced an old vehicle to a hybrid; (2) improved monitoring of trips and efficient car pooling during work-related trips; (3) updated maintenance of vehicles; and (4) reminders on good driving tips to conserve fuel.

- Despite the fact that two (2) DEM vehicles are being driven home by two Executive staff members, DEM still manages to maintain its total fuel usage relatively low.
- It is also important to note that for FY2010-11, numerous out-of-county meetings were held in Dublin, CA for the UASI Approval Authority, UASI Advisory, and BayWeb Interoperability Project meetings.
- But because of DEM's Smart Trip Planning program through monitored vehicle sign-out and car pooling remaining in place, DEM is able to save fuel.

4. OTHER SUSTAINABLE PRACTICES

4a. ZERO WASTE

The results of **DEM Waste Assessment Questionnaire** are attached to the report as **Appendix "P"**. (1) 1011 Turk facility; (2) DES – 30 Van Ness; and (3) UASI – 10 Lombard.

The table below lists the actions that our Zero Waste Coordinators have committed to at each of our locations that will help staff at each location properly recycle, compost, and/or reduce waste.

Facility Name	Address	Commitment
DEM-Division of Emergency Communications	1011 Turk Street	<ul style="list-style-type: none"> • Continue reminding staff members to enroll in e-payroll via mass email • Continue managing storage and closets for excess office supplies, furniture, electronic items, computers to be reused by staff and donate some to other departments through Virtual Warehouse • Continue monitoring containers and guiding staff members to properly dispose of their waste to landfill, compost or recycle bins through verbal and email • Continue reminding members about recycling paper through mass email and posting signs in copier rooms and supply rooms
Division of Emergency Services	30 Van Ness Avenue, Suite 3300	<ul style="list-style-type: none"> • Promote e-payroll and invite staff members to enroll. • Invite SF Environment staff to conduct a refresher Zero Waste training during staff meeting

	10 Lombard Street, SF	<ul style="list-style-type: none"> • Post signs near bins to help staff where items go. • Remind staff to enroll in e-payroll
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Zero Waste Highlights for FY2010-11

- **Paper usage reduction measures:**
 - All DEM personnel are reminded and encouraged to use double-sided printing and copying through emails, briefing notes in the intranet and posting reminders on bulletin boards and copy rooms. DEM uses 100% recycled content paper. ***See Appendix “Q” - Copy of the reminder sent to all DEM employees and posted to bulletin boards about the use of double sided printing and copying.**
 - Decreased junk mail by using stopjunkmail website.
 - Decreased junk faxes by deleting them in the centralized fax box
 - Using a “Form” drive for staff to complete and send request forms electronically
 - DEM staff reuse paper by making them into note pads
 - DEM staff reuses clean side paper by printing office forms for internal purposes.

- **Universal Recycling and Composting Ordinance**
 - DEM uses green compost containers, blue recycle containers and gray or black waste containers to separate recyclables, compostable and trash.
 - 2/08/2012 – All three Zero Waste Coordinators (DEM, DES & UASI) attended the Zero Waste Coordinator’s Workshop in City Hall, Room 034.
 - 2/26/2012 - DEM invited the SF-DOE staff to conduct training on zero waste for the newly hired employees for 2011 and 2012. Sixteen (16) attendees benefited from this presentation. Training facilitator: Soko Made. ***See Appendix “R” – Attendance Sheet Zero Waste Management Training on February 06, 2012 at 1011 Turk Street.**
 - 3/01/2012 - DEM made changes to its service with the Recology Sunset Scavenger: (1) added one compost container; (2) changed garbage container to 4 yard but reduced pick up service from three to two days a week. **DEM anticipates saving more than \$400 a month.**

- **Other Practices** (Greenhouse Gas Reduction Measures and Zero Waste):
 - **Recycling:** All work stations, offices and conference rooms are provided with small to medium blue recycling baskets. Large recycling containers are located in all copier rooms, corridors, break rooms and kitchen. Recycling posters, stickers and flyers are posted in frequently used areas such as break rooms, rest rooms, corridors, kitchens and bulletin boards. A 3-yard recycling bin is picked up twice a week on Mondays and Thursdays.
 - **Composting:** There are five (7) compost containers labeled and located in the operations break room, 2nd floor kitchenette, lobby/sheriff’s area, 2 in the main lunch room, and 2 in the EOC (Emergency Operations Center) 1st floor. Compostable liners are being used in all compost containers. All rest-rooms have separate baskets for “paper towels only” and are deposited into the

compost carts. Compost stickers, flyers and information regarding acceptable compost items are posted in frequently visited areas such as break rooms, rest rooms, kitchens and bulletin boards. DEM acquired 3- 64-gallon carts that are picked up twice a week, Mondays and Thursdays.

- **Virtual Warehouse:** DEM supports the Virtual Warehouse Program of the SF Department of Environment. With the 911-operations renovation project, DEM had accumulated a great number of surplus items like used furniture, office supplies, electronic items, and computer items. Since 2008 and still ongoing, DEM had donated over 1,000 assorted items to city departments (SF Fire Department, SF Department of Public Works, SF Juvenile Probation, SF Sheriff's Department and Bureau of Architecture, Department of Public Health, Rec and Parks Department), and through Excess-Access, non-profit organizations such as Goodwill, Campus California Teacher's Group or CCTG, ACCRC-Berkeley, SF Community Computer Center, Western Addition Technology Community Center and Oakland Technology Exchange West (OXTWest), which benefited from the program.
- **Internal Operations:** DEM reuses some computer, electronic and radio items, office supplies and furniture back. Items that are no longer needed are posted to the Virtual Warehouse.
- **Recycling Station:** DEM designated and manages the WN corridor at 1011 Turk Street as the DEM recycling station where a blue container and containers for batteries, cell phones and electronic items are placed for employees to use. The containers for fluorescent bulbs and tubes and aerosol cans and other chemicals are located in a more secure room only accessible to authorize staff. Posters, stickers and labels are posted in each station and container.

4b. TRANSPORTATION OPTIONS

CCSF COMMUTER PROGRAMS

- 8/03/2011 - DEM Climate Liaison consultation with Adeline Canez on 8/03/2011 regarding the 2011 Employee Commute Outreach Plan
- DEM invited Adeline Canez during the **new hire orientation on 2 occasions:**
 - January 24, 2011 – attended by 15 employees
 - February 06, 2012 – attended by 16 employees

***See Appendix "S" – Copy of the attendance sheet for January 24, 2011**

***See Appendix "T" - Copy of the attendance sheet for February 06, 2012**

- Internal Outreach Avenues and Procedures
DEM promotes internally the alternative transportation incentives to its employees by:

- Forwarding emails from the Clean Air and Transportation Program to all DEM employees via email
- Posting information from the Clean Air and Transportation Program in the Operations' briefing notes via intranet.
- Posting promotional materials and flyers throughout the department building bulletin boards and break rooms.
- Enclosing flyers and promotional materials in new employees' folders or packets.
- Providing incentive program to employees: compressed work week (4/10); flexible time; designating a separated parking space for electric cars at DEM garage; allowing employees to charge their electric cars for free.
- Bike room equipped with bike racks and security cameras.
- Number of Employees enrolled in the Pre-tax Commuter Benefits program for FY 2010-11: seventeen (17)
- Department's participation in local and regional campaigns that promote transportation choices
DEM participated in the Great Race for Clean air 2011

****See Appendix "U" – Certificate of Participation for the Great Race for Clean Air 2011 and Newsletter from our Executive Director inviting staff to join the race.***

- Challenges
DEM continues to promote Pre-Tax Commuter Programs to increase the number of employees in the department enrollment. However, DEM struggles to convince its employees to avail of the pre-tax commuter programs due to the following reasons:
 - The vital function of the department as providing emergency communication between the public and emergency responders requiring staff to work in three shifts. Staff must also be available to work on extended hours if needed. Driving gives them more flexibility.
 - The location of DEM facility has limited means of public transportation.
 - It is *unsafe* to use an alternative means of going to work (such as walking or biking) for staff working in any shift but most especially, the evening and graveyard shifts. Numerous crime activities had happened around DEM facility and continue to happen anytime, making staff members worry about their safety.
- City Bicycle Fleet
 - DEM received three (3) City bicycles with safety accessories such as helmets, U locks, vest and lights provided by the Department of Environment in 2009.

- After a thorough research and careful consideration of many factors such as liability, safety and traffic in our area, DEM decided to return the bicycles to the Department of Environment to offer them to other interested departments.

***See Appendix “V” - Email to our staff members about the Bicycle Fleet**

4c. GREEN PRODUCT PURCHASING

DEM, whenever possible, purchases environmentally safe products and services to lessen the exposure of DEM employees to toxic chemicals and keep our air and water supplies clean.

The results of DEM's Buy Green Scorecard FY2010-11 are attached to the report as **Appendix “W”**.

- DEM's Green Purchasing Program for FY2010-11
 - **February 15, 2012 (10 a.m. – 12 p.m.):** DEM invited Jessian Choy for a training and group consultation regarding Green Purchasing Ordinance and Scavenger Hunt. It was attended by seventeen (17) employees from CECC, DES and UASI.

***See Appendix “X” - Copy of the Attendance Sheet during the Consultation on 2/15/12**

- **SF Approved Catalog:** Attendees to the consultation will be using the SF Approved Catalog as a reference before purchasing commodities for the Department. Attendees will be conducting an audit in their respective units regarding items they regularly order and substitute recommended items. Pledges were distributed and displayed on work stations of personnel involve in purchasing.
- **Purchasing of Computer Items:** DEM purchases all personal computers, notebook computers and monitors through City-approved computer stores. The Department of Technology, under the purchasing policy adopted by the Committee on Information Technology (COIT), is responsible for renegotiating the computer store contracts to ensure vendor's compliance with the EPEAT Silver Standard. DEM will adhere to these standards as they are implemented.
- **Email Alerts** – DEM has signed up for email alerts to get updates of new green products, events and hazardous waste laws.
- **Service Contract:** DEM maintains a service contract with the Real Estate Division (RED) on custodial services. RED is in compliance with the Green Purchasing Program and uses green products for the DEM.
- **Reminders:** DEM staff members involved in purchasing are reminded through email and verbal reminders regarding the sfapproved.org to buy required green products.

***See Appendix “Y” – E-mail reminder to staff about sfapproved.org**

- Hazardous Waste Disposal Program:
 - **Pick Up of Hazardous Waste Materials:** DEM calls SF Environment/DPH for pick up of hazardous waste materials as needed.
- Pest Management

DEM uses **PESTEC**, a city-approved vendor for its pest management. DEM has no service contract with PESTEC but contacts PESTEC as on “as needed” basis.

4d. INFORMATIONTECHNOLOGY

The DEM-IT group is implementing the following actions:

- Power Consumption & Management
 - Notify all employees to shut off personal computers, monitors, printers, copiers and other electrical equipment at the end of each workday unless there is a specific need for after-hours operation. Provide regular reminders to employees to shut off office equipment. Conduct regular (after-hours) inspections to identify if equipment is turned off. Labeling ninety seven (97) administrative PCs and monitors with energy conservation reminder – “**turn off computer and monitor when not in use**” completed on 6/30/11.
 - Verify that sleep mode is implemented on all department computers, copiers and other equipment if technically equipped and not required for 24/7 hour operation. Upon completion of verification, provide a report that all sleep mode capable computers have this feature activated. All administrative PCs are automatically set to go into hibernation or standby mode after 20 minutes of inactivity. As of 6/30/11, this is complete.

PCs used for 9-1-1 service are used 24/7 and must have standby/hibernation disabled.
 - PCs which are used for remote access must have standby/hibernation disabled.
 - In October 2011, DEM replaced all Xerox copiers to all in one (copier, fax and scanner) Konica Minolta. DEM lease contract will end in July 2014. DEM is leasing thirteen (13) copiers: nine (9) are located in 1011 Turk Street, two (2) at DES in 30 Van Ness and two (2) are at UASI office in 10 Lombard. DEM decommissioned a total of 27 copiers, fax machines and scanners in all three offices. Decommissioned items were posted to Virtual Warehouse and most of them had been donated to City departments and non-profit organization – Oakland Technology Exchange West. Konica Minolta machines are energy efficient and power down when not in use. The company has a clean planet recycling program where all consumables (toner cartridges, imaging units, waste toner bottles, developer units and drums) will not go to landfills.

***See Appendix “Z” – Information about Konica Minolta Environment & Zero Waste Emissions activities of Minolta.**

- Purchasing
 - DEM purchases all personal computers, notebook computers and monitors through City-approved computer vendors. The Department of Technology, under the purchasing policy adopted by the Committee on Information Technology (COIT), is responsible for renegotiating the computer store contracts to ensure vendors' compliance with the EPEAT Silver Standard. DEM continues to adhere to these standards as they are revised and updated.
 - ***In Progress:*** DEM has purchased four (4) EPEAT Gold compliant VMware equipped servers which meet the latest COIT standards for energy conservation. Each server can host ten virtual servers. As of this date, DEM has converted eight fifteen (15) physical servers to virtual. Over the next year, DEM anticipates purchasing an additional two (2) VMware equipped servers and converting an additional nine ten (10) servers to this virtual platform for a total of twenty five (25) virtual servers on four physical hardware platforms.
 - In January 2010, DEM has implemented an asset tracking system which will provide comprehensive IT equipment life cycle management and allow the Department to reduce environmental impact by improving efficiency, reducing waste, and extending the useful life of personal computers and other IT equipment. While this system is currently on-line, the complete DEM-IT inventory is not anticipated to be completed and entered into the system prior to July 2011. The asset management system is fully on line.
- Challenges Encountered
 - Funding is a challenge. With additional funding, more energy efficient PCs and servers could be purchased.

4e. CARBON SEQUESTRATION/URBAN FOREST

- DEM is actively trying to take existing emissions out of the air at the 1011 Turk Street facility. Departmentally, it maintains an efficient and safety infrastructure management system through air filtration to provide a healthy environment for DEM employees and improve their quality of life.
- DEM through facility assigned Real Estate Division (RED) Building Engineers, performs regular maintenance and inspection on HVAC units, changing filters every three months, cleaning burners and conditioner coils and checking ducts and pipe for damage. RED Building Engineers conduct regular inspections of all registers to identify blocked units and take actions if necessary.
- Weekly reports regarding HVAC issues and update are being prepared by RED Building Engineers and distributed to the DEM Facility Manager and RED's General Manager and Superintendent.
- Urban forestry is not applicable to DEM. DEM does not plant, care for or otherwise support any urban forest.

5. COMMUNITY WIDE IMPACT

- Based on our core mission there is no applicable place that our Department could extend services or participate directly in decreasing emissions outside of City government.
- DEM continues to educate its employees about water conservation, energy conservation, recycling and composting and the effects of climate change to our city and our world through emails, posters and stickers posted on top of recycling, compost and trash containers, in copier rooms, bulletin boards, and rest-rooms and through emails.
- DEM continues to invite staff from DOE to conduct trainings, lectures on commuter benefit program, recycling, composting, green purchasing and hazardous waste proper disposal, with the hope that DEM employees will apply what they learn from these trainings and lectures not only in their work place but in their respective homes and communities as well.
- Many DEM employees and other city employees currently detailed at DEM expressed that their awareness and active participation about saving the environment both at home and at work have greatly increased. With this success, DEM commits to continue with these educational opportunities and outreach to its employees until all these practices become part of their daily activities thereby contributing to positive effects to climate change not only to the department, the city, and the community, but to the world as a whole.